# PROBLEMS OF INFORMATION TRANSMISSION

**Volume 26, Numbers 1-4, 1990**

(A translation of *Problemy Peredachii Informatsii*)


| | Engl. | Russ. |
|---|---|---|
| **Volume 26, Number 1, January-March, 1990** | | |
| SIGNAL PROCESSING METHODS | | |
| Detection of a Radiation Source Moving relative to the Receiver, with Estimation of Its Velocity and Minimum-Distance Time - G. P. Tartakovskii | 1 | 3 |
| Estimation of Trispectral Density of a Stationary Stochastic Process - V. G. Alekseev | 9 | 12 |
| Quasilinear Estimates of Signals in $L_2$ - G. K. Golubev | 15 | 19 |
| Estimation of a Linearly Filtered Signal - R. D. Dodunekova | 20 | 25 |
| Recursive Estimation of the Mode of a Multivariate Distribution - A. B. Tsybakov | 31 | 38 |
| Minimax Estimation of Linear Functionals in the Presence of Two-Dimensional Noise - V. S. Lebedev | 38 | 46 |
| COMMUNICATION NETWORK THEORY | | |
| Bounds on the Capacity of FCFS Multiple-Access Algorithms - N. D. Vvedenskaya and M. S. Pinsker | 49 | 58 |
| Comparison of Some Multiple-Access Systems - B. S. Tsybakov | 57 | 68 |
| Instability of Slotted ALOHA - G. I. Falin | 63 | 76 |
| INFORMATION THEORY | | |
| Rates for Multiple Description of a Source with Given Error Exponents and Distortion Levels - R. Sh. Marutyan | 68 | 83 |
| LARGE-SCALE SYSTEMS | | |
| Bounds on Probability of Connectedness of a Random Graph - B. P. Polesskii | 75 | 90 |
| BRIEF COMMUNICATIONS | | |
| Asymptotically Exact Uniform Bounds for Spectra of Cosets of Linear Codes - V. M. Blinovskii | 83 | 99 |
| Fast Group-Theoretical Transform - A. L. Vishnevetskii | 87 | 104 |
| Optimality of Sequential Estimation Plans for the Parameters of Recursive Processes - V. Z. Borisov and V. V. Konev | 90 | 108 |
| **Volume 26, Number 2, April-June, 1990** | | |
| INFORMATION THEORY AND CODING THEORY | | |
| Asymptotically Optimal Linear Codes Correcting Defects of Linearly Increasing Multiplicity - I. I. Dumer | 93 | 3 |
| Decoding of Block Codes Obtained from Convolution Codes - B. D. Kudryashov | 104 | 18 |
| Capacity Bounds for a Channel with Synchronization Errors - A. S. Dolgopolov | 111 | 27 |
| SIGNAL PROCESSING METHODS | | |
| Generalized Correlation Metric for Decoding in a Multiple Access Channel - I. E. Bocharova and F. A. Taubin | 121 | 38 |
| Optimal Order of Accuracy of Search Algorithms in Stochastic Optimization - B. T. Polyak and A. B. Tsybakov | 126 | 45 |

| | Engl./Russ. | |
|---|---|---|
| Estimators of the Correlation Region Area of a Gaussian Homogeneous Random Field - V. G. Alekseev | 133 | 54 |
| COMMUNICATIONS NETWORK THEORY AND LARGE SYSTEMS | | |
| Random Multiple Access with Known Appearance Times of Successfully Transmitted Packets - B. S. Tsybakov and N. B. Likhanov | 141 | 62 |
| A Simple Stable RMA Algorithm for LAN - B. S. Tsybakov, V. B. Faingol'd, and S. P. Fedortsov | 151 | 75 |
| Bounds on Probability of Group Connectedness of a Random Graph - V. P. Polesskii | 161 | 87 |
| BRIEF COMMUNICATIONS | | |
| Controllable Connector - L. A. Bassalygo and M. S. Pinsker | 170 | 98 |
| A Comment on the Weight Structure of Generator Matrices of Linear Codes - S. M. Dodunekov | 173 | 101 |
| On Adaptive Conflict Resolution Algorithms in a Multiple Access Channel - A. Ya. Belokopytov | 176 | 104 |

**Volume 26, Number 3, July-September, 1990**

| | | |
|---|---|---|
| INFORMATION THEORY AND CODING THEORY | | |
| Asymptotic Lower Bound on the Free Distance of Constant Linear Convolutional Codes with Rate $1/n_0$ - V. B. Balakirskii | 181 | 3 |
| Majority-Logic Decoding of Generalized Reed-Muller Codes - I. I. Grushko | 189 | 12 |
| Covering the Hamming Space with Sets Translated by Linear Code Vectors - V. M. Blinovskii | 196 | 21 |
| SIGNAL PROCESSING METHODS | | |
| Detection of a Noisy Source Moving Relative to the Receiver, with Estimation of Its Motion Parameters - G. P. Tartakovskii | 202 | 27 |
| Nonparametric Estimation of the Regression Function in $L^2$ - G. K. Golubev and M. Nusbaum | 213 | 38 |
| Second-Order Asymptotic Minimax Estimation in the Presence of a Nuisance Parameter - Z. M. Landsman and B. Ya. Levit | 226 | 50 |
| COMMUNICATION NETWORK THEORY | | |
| Random Multiple Access in a Channel with Binary "Success-No Success" Feedback - B. S. Tsybakov and A. N. Beloyarov | 245 | 67 |
| Asymptotic Analysis of Telegraphic Message Switching Systems - F. I. Karpelevich and A. Ya. Kreinin | 261 | 83 |
| BRIEF COMMUNICATIONS | | |
| Probability Distribution of the Stochastic Convolution Functional of a Normal Markov Process - Yu. P. Virchenko and A. S. Mazmanishvili | 275 | 96 |
| Signals with Two-Level Autocorrelation - A. L. Vishnevetskii | 281 | 101 |
| Spectral Density Estimators of a Periodically Correlated Stochastic Process - V. G. Alekseev | 286 | 106 |

**Volume 26, Number 4, October-December, 1990**

| | | |
|---|---|---|
| INFORMATION THEORY AND CODING THEORY | | |
| Symbol Error Probability for Convolutional Codes - M. V. Burnashev and D. L. Cohn | 289 | 3 |
| E-Capacity of an Arbitrarily Varying Channel with an Informed Coder - M. E. Arutyunyan [Haroutunian] | 299 | 16 |
| Fast Adaptive Coding Algorithm - B. Ya. Ryabko | 305 | 24 |
| Construction of Linear Covering Codes - A. A. Davydov | 317 | 38 |

| | Engl. | Russ. |
|---|---|---|
| Pipeline Decoding of Embedded Trellis Codes: Error-Tolerance Analysis - F. A. Taubin and A. N. Trofimov | 332 | 56 |
| SIGNAL PROCESSING METHODS | | |
| Carrier Phase Estimators in Phase-Shift Keying Modulation - V. A. Lazarev and R. Z. Khas'minskii | 344 | 71 |
| COMMUNICATION NETWORK THEORY | | |
| Random Multiple Access in Binary Feedback Channel - B. S. Tsybakov and A. N. Beloyarov | 354 | 83 |
| BRIEF COMMUNICATIONS | | |
| Bayesian Learning for Pattern Classification in the Class of Density Functions Representable as the Square of the Sum of an Orthogonal Series - A. M. Chikin | 367 | 99 |